

CLAIMS

What is claimed is:

- 5 1. A method for comparing oscillations during a blood pressure determination, comprising:
- acquiring at a pressure increment a first oscillation having one or more oscillation characteristics;
- acquiring at the pressure increment a second oscillation having the one or
10 more oscillation characteristics;
- acquiring a time interval between the first oscillation and the second oscillation via a heart monitor signal generated by an independent heart rate monitoring device;
- selecting a set of matching criteria based upon the heart monitor signal;
- 15 determining whether the time interval is substantially an integer multiple of a reference time interval using the selected set of matching criteria; and
- determining whether the first oscillation and the second oscillation are substantially equivalent based upon the respective one or more oscillation characteristics and upon the selected set of matching criteria.
- 20 2. The method as recited in claim 1, wherein the one or more oscillation characteristics comprise a peak amplitude.
3. The method as recited in claim 1, wherein the independent heart rate
25 monitoring device is at least one of an electrocardiograph, a photoplethysmograph, an accelerometer, an impedance plethysmograph, and an acoustic heart monitor.
4. The method as recited in claim 1 wherein the heart monitor signal is an
30 electrocardiogram.

5. The method as recited in claim 1, wherein the heart monitor signal comprises at least one of a heart rate, a measure of heart rate variability, and an indicator of the presence of arrhythmias.

5 6. The method as recited in claim 1, wherein selecting a set of matching criteria comprises selecting one of a set relaxed matching criteria and a set of unrelaxed matching criteria.

7. A tangible medium for comparing oscillations during a blood pressure determination, comprising:

10 a routine for acquiring at a pressure increment a first oscillation having one or more oscillation characteristics;

a routine for acquiring at the pressure increment a second oscillation having the one or more oscillation characteristics;

15 a routine for acquiring a time interval between the first oscillation and the second oscillation via a heart monitor signal generated by an independent heart rate monitoring device;

a routine for selecting a set of matching criteria based upon the heart monitor signal;

20 a routine for determining whether the time interval is substantially an integer multiple of a reference time interval using the selected set of matching criteria; and

a routine for determining whether the first oscillation and the second oscillation are substantially equivalent based upon the respective one or more oscillation characteristics and upon the selected set of matching criteria.

25 8. The tangible medium as recited in claim 7, wherein the one or more oscillation characteristics comprise a peak amplitude.

9. The tangible medium as recited in claim 7, wherein the independent heart rate monitoring device is at least one of an electrocardiograph, a photoplethysmograph, an accelerometer, an impedance plethysmograph, and an acoustic heart monitor.

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10. The tangible medium as recited in claim 7 wherein the heart monitor signal is an electrocardiogram.

11. The tangible medium as recited in claim 7, wherein the heart monitor signal comprises at least one of a heart rate, a measure of heart rate variability, and an indicator of the presence of arrhythmias.

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12. The tangible medium as recited in claim 7, wherein selecting a set of matching criteria comprises selecting one of a set relaxed matching criteria and a set of unrelaxed matching criteria.

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13. A non-invasive blood pressure monitor, comprising:
means for acquiring a first and a second oscillation at a pressure increment;
means for independently acquiring a time interval between the first and second
oscillations;
means for selecting a set of matching criteria;
means for determining whether the time interval is substantially an integer
multiple of a reference time interval using the selected set of matching criteria; and
means for determining whether the first oscillation and the second oscillation
are substantially equivalent based upon the selected set of matching criteria.

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14. The non-invasive blood pressure monitor as recited in claim 13, wherein the means for selecting a set of matching criteria comprises means for selecting a set of matching criteria based upon analysis of an electrocardiogram signal.

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15. A non-invasive blood pressure monitor, comprising:

a pressure cuff configured to be pressurized by a source of pressurized air via an inflate valve and configured to be deflated via a deflate valve;

5 a pressure transducer configured to determine the pressure within the pressure cuff and to generate a pressure signal;

a heart monitoring device configured to generate a heart monitor signal; and

10 a processing unit configured to receive the pressure signal and the heart monitor signal; to acquire two or more oscillations at a pressure increment from the pressure signal; to determine a time interval separating two oscillations from the heart monitor signal; to select a set of matching criteria based upon the heart monitor signal; to determine whether the time interval is substantially an integer multiple of a reference time interval using the selected set of matching criteria; and to determine whether the two oscillations are substantially equivalent based upon the selected set of matching criteria.

15 16. The non-invasive blood pressure monitor as recited in claim 15, wherein the heart monitoring device comprises one of an electrocardiograph, a photoplethysmograph, an accelerometer, an impedance plethysmograph, and an acoustic heart monitor.

20 17. The non-invasive blood pressure monitor as recited in claim 15, wherein the heart monitor signal comprises at least one of a heart rate, a measure of heartbeat variability, and an indicator of the presence of heart beat irregularities.

25 18. The non-invasive blood pressure monitor as recited in claim 15, wherein the heart monitor signal comprises an electrocardiogram.

30 19. The non-invasive blood pressure monitor as recited in claim 15, wherein the matching criteria comprise one of a set of unrelaxed matching criteria and a set of relaxed matching criteria.

20. The non-invasive blood pressure monitor as recited in claim 15, wherein the processing unit is configured to determine whether the two oscillations are substantially equivalent by comparing a peak amplitude of each of the two oscillations.